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10/797,068	03/11/2004	Yih-Feng Hwang	ASH-03-010	4377

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VERIZON
PATENT MANAGEMENT GROUP
1320 North Court House Road
9th Floor
ARLINGTON, VA 22201-2909

EXAMINER	
DENG, ANNA CHEN	
ART UNIT	PAPER NUMBER
2191	

NOTIFICATION DATE	DELIVERY MODE
12/22/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@verizon.com

Office Action Summary	Application No.	Applicant(s)	
	10/797,068	HWANG, YIH-FENG	
	Examiner	Art Unit	
	ANNA DENG	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response amendment filed on 10/15/2008.

2. The rejection under 35 U.S.C. 101 to claims 9-16, and 22-28 is withdrawn in view of applicant's amendment.

3. Claim3 1-28 are pending.

Response to Amendment

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim22-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 22 recites the limitation "the computer-readable medium" in 3. There is insufficient antecedent basis for this limitation in the claim. This limitation is interpreted to –the computer-readable memory device— thereafter.

Claims 23-28 are rejected for dependency upon rejected base claim 22 above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-4, 6-12, 14-25, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. USPN 6910,028 B2 (hereinafter Chan), in view of "Graphic Algorithms to Identify Defects While Reusing Object-Oriented Software Components" by Hwang et al. Oct 23, 1998 (art of record hereinafter Hwang).

Per Claim 1:

Chan teaches **identifying a scope of the integration** (Chan, col. 4, lines 22-32, providing a merge policy to said assimilator device; assimilating the rulesets to produce a new merged ruleset comprising logic required for resolving potential conflicts among rules in accordance with the merge policy) **based on a multi-level top-down approach** (Chan, col. 1, lines 49-67, many rule based systems support backward and forward chaining. Forward chaining is the process of moving from the "if patterns to the "then" patterns, using the "if" patterns to identify appropriate situations for the deduction of a new assertion or fact or the execution of an action");

identifying faults in business rules that define software in the scope of the integration (Chan, col. 8, lines 54-67, More particularly, with respect to the merge policy CLPs 25(integration business rules), the following mechanisms

are implemented to identify and resolve conflicts among rules (identifying faults in the rules)...);

modifying the business rules based on the identified faults (Chan, col. 4, lines 22-32, produce a new merged ruleset comprising logic required resolving potential conflicts among rules in accordance with the merge policy; also, col. 6, lines 38-41, the InterLingua 20 additionally transforms any resulting merged, exchanged, or modified ruleset from CLP into the original format so as to return it to the application from which the ruleset orginates).

Chan teaches **identifying faults in business rules that define software in the scope of the integration** (see Chan, col. 8, lines 54-56), Chan does not explicitly teach **by applying generic depth-first search (DFS)-based techniques to the business rules.** However, Hwang teaches **by applying generic depth-first search (DFS)-based techniques to the business rules** (Hwang, Fig. 6, Criteria for Generic-DFS Algorithms, Fig. 7, C++ Pseudo Codes for GDFS Algorithms; also, p. 3, Section 4.2. Pseudo Codes for Generic-DFS (GDFS) Algorithms, Based on the criteria defined in Figure 6 for detecting reuse defects, C++ pseudo code for GDFS algorithms are presented as illustrated in Figure. 7, Given a TDG G that comprises n nodes (axioms) and constant c exclusive pairs of nodes. The complexity to detect one or more inconsistency and contradiction defect patterns in G is 0(n). The complexity to detect one or more redundancy/subsumption defect patterns in G is 0(n)).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Chan to

include by applying generic depth-first search (DFS)-based techniques to the business rules using the teaching of Hwang. The modification would be obvious because one of ordinary skill in the art would be motivated to provide algorithms that will effectively identify specification logic defects whose removal will prevent potentially harmful system failure (Hwang, p. 1, Section 1.2. The Research Problem).

Per Claim 2:

The rejection of claim 1 is incorporated, Chan teaches **identifying faults in the business rules** (Chan, col. 8, lines 54-46); and further, Hwang teaches **includes representing the business rules using a transition-directed graph (TDG) representation** (Hwang, Fig. 4, Transition Directed_Griaph (TDG), Fig. 5, Reuse Defects using TDG representation, and p. 3, Section 4. The Method to Identify Reuse Defect, A new digraph paradigm called transition-directed graph (TDG) [9] is used to represent invariant assertions into a directed graph (digraph)... also see Section 4.1. Transition directed Graph and Criteria).

Per Claim 3:

The rejection of claim 1 is incorporated, Chan further teaches **wherein the multi-level top-down approach includes: a first level that includes high-level software systems** (Chan, col. 6, lines 11-20, FIG. 2 is a diagram depicting the high-level interaction between the various components underlying the conflict handling and assimilator service 19 for rule-based knowledge systems and

applications).

Per Claim 4:

The rejection of claim 3 is incorporated, Chan further teaches **wherein the multi-level top-down approach further includes: a second level that includes business processes of the high-level software systems** (Chan, col. col. 6, lines 11-20, the various components underlying the conflict handling and assimilator service 19 for rule-based knowledge systems and applications).

Per Claim 6:

The rejection of claim 4 is incorporated, Chan further teaches **comparing the business processes to locate similar business processes that are to be integrated** (Chan, col. 4, lines 8-15, provide for a flexible assimilator service that allows for the exchange or merger of rulesets (e.g., business policies) with different originating formats in a distributed environment).

Per Claim 7:

The rejection of claim 1 is incorporated, Chan further teaches **wherein identifying the scope of the integration is performed on software systems from multiple merging entities** (Chan, col. 4, lines 8-15, provide for a flexible assimilator service that allows for the exchange or merger of rulesets (e.g., business policies) with different originating formats in a distributed environment).

Per Claim 8:

The rejection of claim 1 is incorporated, Chan teaches **identified faults include faults** (Chan, col. 8, lines 54-56), and further, Hwang teaches **include faults of at least one of inconsistency, contradiction, circularity, subsumption, redundancy, and incompleteness (**Hwang, p. 3, Section 4.2. Pseudo Codes for Generic-DFS (GDFS) Algorithms, Based on the criteria defined in Figure 6 for detecting reuse defects, C++ pseudo code for GDFS algorithms are presented as illustrated in Figure. 7, Given a TDG G that comprises n nodes (axioms) and constant c exclusive pairs of nodes. The complexity to detect one or more inconsistency and contradiction defect patterns in G is 0(n). The complexity to detect one or more redundancy/subsumption defect patterns in G is 0(n)).

Per Claims 9-12, and 14-16:

These are computer-implemented system versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claims 17-21:

These are another versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed

and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claims 22-25, and 27-28:

These are computer-readable memory device versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

9. Claims 5, 13, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. USPN 6910,028 B2 (hereinafter Chan), in view of "Graphic Algorithms to Identify Defects While Reusing Object-Oriented Software Components" by Hwang et al. Oct 23, 1998 (art of record hereinafter Hwang), further in view of Bahrami, USPUB 2004/0078777 A1 (hereinafter Bahrami).

Per Claim 5:

The rejection of claim 4 is incorporated, and further, the combination of Chan and Hwang does not explicitly teaches **wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as transitions in the business processes; a fourth level that includes interface functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions.**

However, Bahrami teaches **wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as transitions in the business processes; a fourth level that includes interface functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions** (Bahrami, [0032], a plurality of levels of detail can be shown in activity diagrams where hierarchical process modeling is used. In hierarchical process modeling, a process is modeled on a plurality of levels of detail, such that lower levels or sub-processes are included in higher level processes), .

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by the combination of Chan and Hwang to include wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as transitions in the business processes; a fourth level that includes interface functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions using the teaching of Bahrami. The modification would be obvious because one of ordinary skill in the art would be motivated to provide closed-loop analysis of a business process (Bahrami, [0005]).

Per Claim 13:

This is computer-implemented system version of the claimed method discussed above (claim 5), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Per Claim 26:

This is computer-readable medium version of the claimed method discussed above (claim 5), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Response to Arguments

10. Applicant's arguments filed 10/15/2008 have been fully considered but they are not persuasive.

Applicant argued:

Chan and Hwang do not disclose or suggest identifying faults in business rules that define software in the scope of the integration of software systems by applying generic depth-first search (DFS)-based techniques to the business rules, as recited in claim 1.

Examiner response:

The combination of Chan and Hwang does disclose and suggest identifying faults in business rules that define software in the scope of the integration of software systems (see Chan, col. 8, lines 54-67, More particularly, with respect to the merge policy CLPs 25 (integration business rules), the following mechanisms are implemented to identify and resolve conflicts among rules (identifying faults in the rules)…) by applying generic depth-first search (DFS)-based techniques to the business rules (Hwang, Fig. 6, Criteria for Generic-DFS Algorithms, Fig. 7, C++ Pseudo Codes for GDFS Algorithms; also, p. 3, Section 4.2. Pseudo Codes for Generic-DFS (GDFS) Algorithms, Based on the criteria defined in Figure 6 for detecting reuse defects, C++ pseudo code for GDFS algorithms are presented as illustrated in Figure. 7, Given a TDG G that comprises n nodes (axioms) and constant c exclusive pairs of nodes. The complexity to detect one or more inconsistency and contradiction defect patterns in G is 0(n). The complexity to detect one or more redundancy/subsumption defect patterns in G is 0(n)). Here it is obvious to applying Hwang's DFS algorithms to Chan's mechanisms for identifying faults in the rules.

Applicant argued:

Claim 2 recite representing the business rules using the transition-directed graph (TDG) representation … While Fig. 4 of Hwang et al. illustrates a TDG, Fig. 4 of Hwang et al does not disclose or suggest representing business rule using a transition-directed graph (TDG) representation, as recited in claim 2.

Examiner response:

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The combination of Chan and Hwang teaches identifying faults in the business rules (Chan, col. 8, lines 54-46) includes representing the business rules using a transition-directed graph (TDG) representation (Hwang, Fig. 4, Transition Directed_Griaph (TDG), Fig. 5, Reuse Defects using TDG representation, and p. 3, Section 4. The Method to Identify Reuse Defect, A new digraph paradigm called transition-directed graph (TDG) [9] is used to represent invariant assertions into a directed graph (digraph)... also see Section 4.1. Transition directed Graph and Criteria) as recites in the pending claim 2.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136 (a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory

period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Deng whose telephone number is 571-272-5989. The examiner can normally be reached on Monday to Friday 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Zhen can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC2100 Group receptionist whose telephone number is 571-272-2100.

/Anna Deng/

Examiner, Art Unit 2191

/Wei Y Zhen/

Supervisory Patent Examiner, Art Unit 2191